I.   **AMENDMENTS TO THE CLAIMS**:

Kindly amend claims 1-28 as follows.

The following claims will replace all prior listing, or versions, of claims in the present application.

LISTING OF CLAIMS:

1. (Currently Amended) A data processing method for extracting a subset ~~as a processing object~~ from ~~a~~ tabular format data viewed~~expressed~~ as an array of records, each record including ~~an~~ item values~~and an item value~~ belonging to items~~the item~~, the method comprising the steps of:

(a) ~~a step of~~ constructing the tabular format data by creating~~dividing it into~~ information blocks corresponding to respective items, each information block including a first value list in which the item values are stored in order of item value numbers corresponding to the item values ~~belonging to a specific item~~ and a first pointer array in which pointer values indicating~~to indicate~~ the item value numbers are stored in order of unique record numbers;

(b) ~~a step of~~ creating, ~~in response to selection of a subset as a part of the records,~~ an ordered set array containing record~~recording~~ numbers of records selected from the array of the records, wherein the selected record numbers are arranged in a specified order in the ordered set array~~the subset~~;

(c) ~~a step of~~ arranging a pointer value in the first pointer array at a position indicated by each of the record numbers of the ordered set array into an item value number array at a position corresponding~~correspondingly~~ to a~~the~~ position where the record number is arranged in the ordered set array; and

(d) ~~a step of~~ creating <u>a second value list storing value elements contained in the item value number array and</u> a second pointer array storing position elements <u>indicating elements in the second value list corresponding to the record numbers</u>~~and a second value list storing value elements~~ by referring to ~~the value in~~ the item value number array, ~~and~~ wherein

a value in the <u>first</u> value list is specified from a record number of the ordered set array through <u>a first</u>~~an~~ element in the second pointer array at a position <u>indicated</u>~~indicted~~ by the record number and <u>a second</u>~~an~~ element in the second value list at a position indicated by the <u>first</u> element in the second pointer array.

2. (Currently Amended) The data processing method according to claim 1, <u>wherein</u>~~characterized in that~~ the step of creating the second <u>value list</u>~~pointer array~~ and the step of creating the second <u>pointer array include the steps of</u>~~value list includes~~:

~~a step of~~ sorting ~~the~~ elements in the item value number array, creating <u>a third</u>~~an~~ array in a state where a duplicate value is excluded, and <u>substituting the created third array for</u>~~making this~~ the second value list; and

~~a step of~~ creating the second pointer array by converting the elements in the item value number array to reflect the sort <u>of the elements in the item value number array</u> and the exclusion of the duplicate value.

3. (Currently Amended) A data processing method for extracting a subset ~~as a processing object~~ from ~~a~~ tabular format data <u>viewed</u>~~expressed~~ as an array of records<u>,</u> each <u>record</u> including ~~an item and an~~ item <u>values</u>~~value~~ belonging to <u>items</u>~~the item~~, <u>the method</u> comprising <u>the steps of</u>:

(a) ~~a step of~~ constructing the tabular format data by <u>creating</u>~~dividing it into~~ information blocks <u>corresponding to respective items,</u> each <u>information block</u> including a

first value list in which the item values are stored in order of item value numbers corresponding to the item values ~~belonging to a specific item~~ and a first pointer array in which pointer values indicating~~to indicate~~ the item value numbers are stored in order of unique record numbers;

(b) ~~a step of~~ creating, ~~in response to selection of a subset as a part of the records,~~ an ordered set array containing record~~recording~~ numbers of records selected from the array of records, wherein the selected record numbers are arranged in a specified order in the ordered set array~~the subset~~;

(c) ~~a step of~~ arranging a pointer value in the first pointer array at a position indicated by each of the record numbers of the ordered set array into an item value number array at a position corresponding~~correspondingly~~ to a~~the~~ position where the record number is arranged in the ordered set array; and

(d)~~e)~~ specifying ~~a step of using the item value number array as a second value list and using the original value list as a second value list, and wherein~~

——————a value in the first value list ~~is specified~~ from a record number of the ordered set array through an element in the item value number~~second pointer~~ array at a position indicated~~indicted~~ by the record number ~~and an element in the second value list at a position indicated by the element in the second pointer array~~.

4. (Currently Amended) The data processing method according to claim 1, ~~characterized by~~ further comprising the~~a~~ step of~~:~~

comparing a size of the ordered set array with a size of the first value list,

wherein, as a result of the comparison, when~~in a case where the~~ size of the ordered set array~~subset~~ is smaller than the size of the first value list at a predetermined rate, then~~the~~ steps (c) and (d),~~c) and d) or the steps c) and e)~~ are performed.

5. (Currently Amended) A retrieval method using the second pointer array, or and/or the second value list, or the second pointer array and the second value list created by the data processing method according to claim 1, wherein the retrieval method comprises the steps of characterized by comprising:

a step of specifying an element indicating an item value as a retrieval object among elements in the second value list;

a step of arraying a value indicating that a flag is on at a position corresponding to a position of the specified element in a flag array having the same size as the second value list;

a step of specifying an element of the second pointer array indicated by a record number in the ordered set;

a step of referring to a state of a flag at a position indicated by an element of the second pointer array in the flag array; and

a step of successively arranging the record number into a newly provided ordered set array for output in a case where the state of the flag is on.

6. (Currently Amended) An aggregation method using the second pointer array, or and/or the second value list, or the second pointer array and the second value list created by the data processing method according to claim 1, wherein the aggregation method comprises the steps of characterized by comprising:

a step of creating a classification number array in which a classification number indicating a category of a value is arranged correspondingly to an element of the second value list;

a step of specifying a record number in the ordered set array corresponding to the specified classification number; and

~~a step of~~ performing aggregation using a predetermined value list item value indicated by the specified record number.

7. (Currently Amended) A sort method using the second pointer array, or ~~and/or~~ the second value list, or the second pointer array and the second value list created by the data processing method according to claim 1, wherein the sort method comprises the steps of ~~characterized by comprising~~:

~~a step of~~ calculating an existence number as the number of elements indicated by the second pointer array for each value of the second value list;

~~a step of~~ creating, based on the existence number, a cumulative number array corresponding to a value of the second value list and indicating a head position at which a record number in the ordered set array is to be arranged; and

~~a step of~~ referring to the cumulative array and arranging a record number of the ordered set array into an array for output so that a sort order of the item values in the value list is reflected.

8. (Currently Amended) A method of joining tabular format data by using the second pointer array, or ~~and/or~~ the second value list, or the second pointer array and the second value list in the information block relating to each of plural tabular format data created by the data processing method according to claim 1, wherein the method of joining tabular format data comprises that steps of ~~characterized by comprising~~:

~~a step of~~ finding an item to be shared in each of the plural tabular format data;

~~a step of~~ equating item values in the second value list of the information block relating to the item; and

a step of, in response to equating the item values, updating an element in the second pointer array in each of the information blocks in accordance with a change in arrangement of the item values.

9. (Currently Amended) A data processing program stored in memory of a computer andfor operating thea computer to extract a subset as a processing object from a tabular format data viewedexpressed as an array of records, each record including an item valuesand an item value belonging to itemsthe item, wherein the data processing program causescausing the computer to execute the steps of:

(a) a step of constructing the tabular format data by creatingdividing it into information blocks corresponding to respective items, each information block including a first value list in which the item values are stored in order of item value numbers corresponding to the item values belonging to a specific item and a first pointer array in which pointer values indicatingto indicate the item value numbers are stored in order of unique record numbers;

(b) a step of creating, in response to selection of a subset as a part of the records, an ordered set array containing recordrecording numbers of records selected from the array of the records, wherein the selected record numbers are arranged in a specified order in the ordered set arraythe subset;

(c) a step of arranging a pointer value in the first pointer array at a position indicated by each of the record numbers of the ordered set array into an item value number array at a position correspondingcorrespondingly to athe position where the record number is arranged in the ordered set array; and

(d) a step of creating a second value list storing value elements contained in the item value number array and a second pointer array storing position elements indicating elements

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in the second value list corresponding to the record numbers~~and a second value list storing value elements~~ by referring to ~~the value in~~ the item value number array, ~~and~~ wherein

the computer operates so~~is operated such~~ that a value in the first value list is specified from a record number of the ordered set array through a first~~an~~ element in the second pointer array at a position indicated~~indicted~~ by the record number and a second~~an~~ element in the second value list at a position indicated by the first element in the second pointer array.

10. (Currently Amended) The data processing program according to claim 9, wherein~~characterized in that~~

when~~in the step of~~ creating the second value list~~pointer array~~ and the second pointer array~~value list~~, the computer is made to execute the steps of:

~~a step of~~sorting the elements in the item value number array, creating a third~~an~~ array in a state where a duplicate value is excluded, and substituting the created third array for~~making this~~ the second value list; and

~~a step of~~creating the second pointer array by converting the elements in the item value number array to reflect the sort of the elements in the item value number array and the exclusion of the duplicate value.

11. (Currently Amended) A data processing program stored in memory of a computer and~~for~~ operating the~~a~~ computer to extract a subset ~~as a processing object~~ from a~~a~~ tabular format data viewed~~expressed~~ as an array of records, each record including ~~an item and an~~ item values~~value~~ belonging to items~~the item~~, wherein the data processing program causes~~causing~~ the computer to execute the steps of:

(a) ~~a step of~~constructing the tabular format data by creating~~dividing it into~~ information blocks corresponding to respective items, each information block including a

first value list in which the item values are stored in order of item value numbers

corresponding to the item values ~~belonging to a specific item~~ and a first pointer array in

which pointer values indicating~~to indicate~~ the item value numbers are stored in order of

unique record numbers;

(b) ~~a step of~~ creating, ~~in response to selection of a subset as a part of the records,~~ an

ordered set array containing record~~recording~~ numbers of records selected from the array of

the records, wherein the selected record numbers are arranged in a specified order in the

ordered set array~~the subset~~;

(c) ~~a step of~~ arranging a pointer value in the first pointer array at a position indicated

by each of the record numbers of the ordered set array into an item value number array at a

position corresponding~~correspondingly~~ to a~~the~~ position where the record number is arranged

in the ordered set array; and

~~e) a step of using the item value number array as a second value list and using the~~

~~original value list as a second value list, and wherein~~

~~————~~(d) the computer is ~~made to~~ operated to specify~~such that~~ a value in the first value list

~~is specified~~ from a record number of the ordered set array through an element in the item

value number~~second pointer~~ array at a position indicated~~indicted~~ by the record number ~~and~~

~~an element in the second value list at a position indicated by the element in the second pointer~~

~~array~~.

12. (Currently Amended) The data processing program according to claim 9,

wherein the program makes~~characterized in that~~ the computer ~~is made to~~ execute the~~a~~ step of:

comparing a size of the ordered set array with a size of the first value list, ~~and~~

wherein, as a result of the comparison, when~~in a case where the~~ size of the ordered set array~~subset~~ is smaller than the size of the first value list at a predetermined rate, then program makes the computer ~~is made to~~ execute the steps (c) and (d)~~c) and d) or the steps c) and e)~~.

13. (Currently Amended) The data processing method according to claim 2, ~~characterized by~~ further comprising the~~a~~ step of:

comparing a size of the ordered set array with a size of the first value list,

wherein, as a result of the comparison, when~~in a case where the~~ size of the ordered set array~~subset~~ is smaller than the size of the first value list at a predetermined rate, then~~the~~ steps (c) and (d)~~c) and d) or the steps c) and e)~~ are performed.

14. (Currently Amended) The data processing method according to claim 3, ~~characterized by~~ further comprising the~~a~~ step of:

comparing a size of the ordered set array with a size of the first value list,

wherein, as a result of the comparison, when~~in a case where the~~ size of the ordered set array~~subset~~ is smaller than the size of the first value list at a predetermined rate, then~~the~~ steps (c) and (d)~~c) and d) or the steps c) and e)~~ are performed.

15. (Currently Amended) A retrieval method using the second pointer array, or ~~and/or~~ the second value list, or the second pointer array and the second value list created by the data processing method according to claim 2, wherein the retrieval method comprises the steps of~~characterized by comprising~~:

~~a step of~~ specifying an element indicating an item value as a retrieval object among elements in the second value list;

a step of arraying a value indicating that a flag is on at a position corresponding to a position of the specified element in a flag array having the same size as the second value list;

a step of specifying an element of the second pointer array indicated by a record number in the ordered set;

a step of referring to a state of a flag at a position indicated by an element of the second pointer array in the flag array; and

a step of successively arranging the record number into a newly provided ordered set array for output in a case where the state of the flag is on.

16.   (Currently Amended) A retrieval method using the firstsecond pointer array, or and/or the firstsecond value list, or the first pointer array and the first value list created by the data processing method according to claim 3, wherein the retrieval method comprises the steps ofcharacterized by comprising:

a step of specifying an element indicating an item value as a retrieval object among elements in the firstsecond value list;

a step of arraying a value indicating that a flag is on at a position corresponding to a position of the specified element in a flag array having the same size as the firstsecond value list;

a step of specifying an element of the firstsecond pointer array indicated by a record number in the ordered set;

a step of referring to a state of a flag at a position indicated by an element of the firstsecond pointer array in the flag array; and

a step of successively arranging the record number into a newly provided ordered set array for output in a case where the state of the flag is on.

17. (Currently Amended) A retrieval method using the first~~second~~ pointer array, or ~~and/or~~ the first~~second~~ value list, or the first pointer array and the first value list created by the data processing method according to claim 4, wherein the retrieval method comprises the steps of~~characterized by comprising~~:

~~a step of~~ specifying an element indicating an item value as a retrieval object among elements in the first~~second~~ value list;

~~a step of~~ arraying a value indicating that a flag is on at a position corresponding to a position of the specified element in a flag array having the same size as the first~~second~~ value list;

~~a step of~~ specifying an element of the first~~second~~ pointer array indicated by a record number in the ordered set;

~~a step of~~ referring to a state of a flag at a position indicated by an element of the first~~second~~ pointer array in the flag array; and

~~a step of~~ successively arranging the record number into a newly provided ordered set array for output in a case where the state of the flag is on.

18. (Currently Amended) An aggregation method using the second pointer array, or ~~and/or~~ the second value list, or the second pointer array and the second value list created by the data processing method according to claim 2, wherein the aggregation method comprises the steps of~~characterized by comprising~~:

~~a step of~~ creating a classification number array in which a classification number indicating a category of a value is arranged correspondingly to an element of the second value list;

~~a step of~~ specifying a record number in the ordered set array corresponding to the specified classification number; and

a step of performing aggregation using a predetermined value list item value indicated by the specified record number.

19. (Currently Amended) An aggregation method using the firstsecond pointer array, or and/or the firstsecond value list, or the first pointer array and the first value list created by the data processing method according to claim 3, wherein the aggregation method comprises the steps ofcharacterized by comprising:

a step of creating a classification number array in which a classification number indicating a category of a value is arranged correspondingly to an element of the firstsecond value list;

a step of specifying a record number in the ordered set array corresponding to the specified classification number; and

a step of performing aggregation using a predetermined value list item value indicated by the specified record number.

20. (Currently Amended) An aggregation method using the firstsecond pointer array, or and/or the firstsecond value list, or the first pointer array and the first value list created by the data processing method according to claim 4, wherein the method comprises the steps ofcharacterized by comprising:

a step of creating a classification number array in which a classification number indicating a category of a value is arranged correspondingly to an element of the firstsecond value list;

a step of specifying a record number in the ordered set array corresponding to the specified classification number; and

a step of performing aggregation using a predetermined value list item value indicated by the specified record number.

21. (Currently Amended) A sort method using the second pointer array, or and/or the second value list, or the second pointer array and the second value list, created by the data processing method according to claim 2, wherein the sort method comprises the steps ofcharacterized by comprising:

a step of calculating an existence number as the number of elements indicated by the second pointer array for each value of the second value list;

a step of creating, based on the existence number, a cumulative number array corresponding to a value of the second value list and indicating a head position at which a record number in the ordered set array is to be arranged; and

a step of referring to the cumulative array and arranging a record number of the ordered set array into an array for output so that a sort order of the item values in the value list is reflected.

22. (Currently Amended) A sort method using the firstsecond pointer array, or and/or the firstsecond value list, or the first pointer array and the first value list created by the data processing method according to claim 3, wherein the sort method comprises the steps ofcharacterized by comprising:

a step of calculating an existence number as the number of elements indicated by the firstsecond pointer array for each value of the firstsecond value list;

a step of creating, based on the existence number, a cumulative number array corresponding to a value of the firstsecond value list and indicating a head position at which a record number in the ordered set array is to be arranged; and

a step of referring to the cumulative array and arranging a record number of the ordered set array into an array for output so that a sort order of the item values in the value list is reflected.

23. (Currently Amended) A sort method using the first~~second~~ pointer array, or and/or the first~~second~~ value list, or the first pointer array and the first value list created by the data processing method according to claim 4, wherein the sort method comprises the steps of~~characterized by comprising~~:

a step of calculating an existence number as the number of elements indicated by the first~~second~~ pointer array for each value of the first~~second~~ value list;

a step of creating, based on the existence number, a cumulative number array corresponding to a value of the first~~second~~ value list and indicating a head position at which a record number in the ordered set array is to be arranged; and

a step of referring to the cumulative array and arranging a record number of the ordered set array into an array for output so that a sort order of the item values in the value list is reflected.

24. (Currently Amended) A method of joining tabular format data by using the second pointer array, or and/or the second value list, or the second pointer array and the second value list in the information block relating to each of plural tabular format data created by the data processing method according to claim 2, wherein the method of joining tabular format data comprises~~characterized by comprising~~:

a step of finding an item to be shared in each of the plural tabular format data;

a step of equating item values in the second value list of the information block relating to the item; and

a step of, in response to equating the item values, updating an element in the second pointer array in each of the information blocks in accordance with a change in arrangement of the item values.

25. (Currently Amended) A method of joining tabular format data by using the firstsecond pointer array, or and/or the firstsecond value list, or the first pointer array and the first value list in the information block relating to each of plural tabular format data created by the data processing method according to claim 3, wherein the method of joining tabular format data comprises the steps ofcharacterized by comprising:

a step of finding an item to be shared in each of the plural tabular format data;

a step of equating item values in the firstsecond value list of the information block relating to the item; and

a step of, in response to equating the item values, updating an element in the firstsecond pointer array in each of the information blocks in accordance with a change in arrangement of the item values.

26. (Currently Amended) A method of joining tabular format data by using the firstsecond pointer array, or and/or the firstsecond value list, or the first pointer array and the first value list in the information block relating to each of plural tabular format data created by the data processing method according to claim 4, wherein the method of joining tabular format data comprises the steps ofcharacterized by comprising:

a step of finding an item to be shared in each of the plural tabular format data;

a step of equating item values in the firstsecond value list of the information block relating to the item; and

a step of, in response to equating the item values, updating an element in the

firstsecond pointer array in each of the information blocks in accordance with a change in

arrangement of the item values.

27. (Currently Amended) The data processing program according to claim 10,

wherein the program causescharacterized in that the computer is made to execute a step of

comparing a size of the ordered set array with a size of the first value list, and

wherein, as a result of the comparison, whenin a case where the size of the ordered set

arraysubset is smaller than the size of the first value list at a predetermined rate, the computer

is made to execute the steps (c) and (d)c) and d) or the steps c) and e).

28. (Currently Amended) The data processing program according to claim 11,

wherein the program causescharacterized in that the computer is made to execute a step of

comparing a size of the ordered set array with a size of the first value list, and

wherein, as a result of the comparison, whenin a case where the size of the ordered set

arraysubset is smaller than the size of the first value list at a predetermined rate, the computer

is made to execute the steps (c) and (d)c) and d) or the steps c) and e).